OUR CHALLENGE TO YOU

Our research adheres to the highest standards of scientific rigor. We know that one reason the school choice movement has achieved such great success is because the empirical evidence really does show that school choice works. More and more people are dropping their opposition to school choice as they become familiar with the large body of high-quality scientific studies that supports it. Having racked up a steady record of success through good science, why would we sabotage our credibility with junk science?

This is our answer to those who say we can't produce credible research because we aren't neutral about school choice. Some people think that good science can only be produced by researchers who have no opinions about the things they study. Like robots, these neutral researchers are supposed to carry out their analyses without actually thinking or caring about the subjects they study.

But what's the point of doing science in the first place if we're never allowed to come to any conclusions? Why would we want to stay neutral when some policies are solidly proven to work, and others are proven to fail?

That's why it's foolish to dismiss all the studies showing that school choice works on grounds that they were conducted by researchers who think that school choice works. If we take that approach, we would have to dismiss all the studies showing that smoking causes cancer, because all of them were conducted by researchers who think that smoking causes cancer. We would end up rejecting all science across the board.

The sensible approach is to accept studies that follow sound scientific methods, and reject those that don't. Science produces reliable empirical information, not because scientists are devoid of opinions and motives, but because the rigorous procedural rules of science prevent the researchers' opinions and motives from determining their results. If research adheres to scientific standards, its results can be relied upon no matter who conducted it. If not, then the biases of the researcher do become relevant, because lack of scientific rigor opens the door for those biases to affect the results.

So if you're skeptical about our research on school choice, this is our challenge to you: prove us wrong. Judge our work by scientific standards and see how it measures up. If you can find anything in our work that doesn't follow sound empirical methods, by all means say so. We welcome any and all scientific critique of our work. But if you can't find anything scientifically wrong with it, don't complain that our findings can't be true just because we're not neutral. That may make a good sound bite, but what lurks behind it is a flat rejection of science.

The Fiscal Impact of the Kentucky Education Tax Credit Program

Prepared By:

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MILTON & ROSE D. FRIEDMAN FOUNDATION

Educational Choice

About the Author

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About the Milton and Rose D. Friedman Foundation

The Milton and Rose D. Friedman Foundation, dubbed "the nation's leading voucher advocates" by the Wall Street Journal, is a non-profit organization established in 1996. The origins of the foundation lie in the Friedmans' long-standing concern about the serious deficiencies in America's elementary and secondary public schools. The best way to improve the quality of education, they believe, is to enable all parents with the freedom to choose the schools that their children attend. The Friedman Foundation builds upon this vision, clarifies its meaning to the public and amplifies the national call for true education reform through school choice.

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Executive Summary

This study examines the fiscal impact of Kentucky House Bill 231, introduced in the 2006 regular legislative session. This bill would establish the Kentucky Education Tax Credit Program, which would create two new tax provisions: a tax credit for individual taxpayers, applicable to their family's own educational expenses and worth up to $500; and a scholarship tax credit for corporate taxpayers who contribute to organizations that provide private-school scholarships. Both programs would be limited to students from low-income and moderate-income families. Taking the experience of other states with similar programs as a model, we used data on student demographics and school finance in Kentucky to predict the fiscal effects of these programs on the state budget.

Key findings:

- Under the individual tax credit component, families can be expected to claim about $23.2 million in tax credits for qualified educational expenditures. However, because the tax credit will lower the cost of private-school tuition by up to $500 per family, it will induce a small percentage of public-school students (about 3,000) to migrate from public to private schools. This migration would save Kentucky about $11.8 million in state education spending. Thus, the net cost of the tax credit would be about $11.4 million – less than half the nominal dollar size of the program.

- Under the scholarship tax credit component, we anticipate that Kentucky businesses will contribute the full $60 million permitted during its first year, because of the advantages to donating businesses and based on the experience of other states with similar tax credit programs. However, as with the individual tax credit, the fiscal impact of the scholarship tax credit program will be mitigated by the number of students who migrate from public school to private school as a result of the scholarships. Although this program gives businesses $60 million in tax credits, the actual net cost in the program's first year would only be between $2 to $17 million, depending on factors such as the dollar value of the scholarships offered.

- The program's fiscal impact will substantially improve in future years, as the amount spent per student in Kentucky public schools grows faster than the cost of tax-credit scholarships. Depending on the size of the scholarships, the program could begin to save the state money; at the very least, it will cost less with each passing year. In the tenth year of operation, the program's fiscal impact on the state would be between a net savings of $14 million and a net cost of $14 million.

Introduction

Proposals to increase educational opportunities and choices for students of different backgrounds, abilities, needs and economic circumstances are increasing throughout the country. In part, this reflects growing support among the public for the concept of school choice; a majority of U.S. citizens now support it, according to data reported by the U.S. Department of Education.[1] Proposals to establish charter schools, vouchers, scholarships and tax credits seek to increase the choices parents have for their children's education. Each is motivated by core beliefs that include:

- Parental involvement is critical to the educational achievement of children.
- All parents, regardless of means, should have a say in how and where their children are educated.
- Parental choice should extend beyond the public schools because public schools cannot realistically provide the variety of educational experiences needed to meet the unique educational needs of every child.

Increasingly, however, school-choice initiatives are being considered in response to concerns about the economics of public education. These include:

- Education expenditures that are rising much faster than inflation.
- Measurable academic outcomes of public education that have not increased despite dramatic increases in expenditures.
- The absence of widespread alternatives to public education, broadly available to families and children of all means that may be producing a public education system with little or no incentive to improve its performance and/or limit expenditure increases.
- Increases in the school-age population in rapidly growing regions that create school space needs and add significant capital costs to school district budgets.

The Rise of Individual Tax Credits and Scholarship Tax Credits

Individual tax credits and scholarship tax credits are methods of introducing parental choice in education that have arisen, in part, in response to the concerns above. Six states – Minnesota, Iowa, Illinois, Florida, Pennsylvania and Arizona – have some form of tax relief for individuals or corporations that provide funds for children to attend private schools.

Individual tax credits and tax deductions, offered in Illinois, Iowa and Minnesota, allow parents who send their children to private schools (and, in some proposals, those who home-school their children) to deduct a portion of their tuition or educational expenses from their individual state income tax. Parents pay tuition to private schools and then reduce their state income tax liability by an amount equal to the value of the tax credit or deduction.

Scholarship tax credits allow taxpayers to receive a tax credit for contributions to non-profit organizations that in turn give scholarships to students to attend private schools. Pennsylvania, Arizona and Florida have established scholarship tax credit programs. This policy allows individuals or businesses, or both, to specifically direct the use of their tax dollars to education by making contributions to scholarship organizations. With these programs, the state is not involved in giving scholarships to students; rather it provides a credit for donations to non-profit scholarship organizations.

The Kentucky Education Tax Credit Program

The Kentucky Education Tax Credit Program proposed by House Bill 231 would create both an individual tax credit, applicable to each family's own educational expenses, and a scholarship tax credit for businesses that contribute to organizations that grant private-school scholarships. This analysis will consider the proposals together, assuming there is some interaction between the two programs as parents make choices about where and how to educate their children.

Businesses in Kentucky would be allowed a tax credit for contributions made to organizations that provide scholarships to families who want to attend a private school or a public school outside their assigned school district. Businesses could claim a credit against their corporate taxes at a rate of 75 percent to 90 percent for every dollar contributed to a scholarship-granting organization, up to $200,000 or the maximum amount of their tax liability, whichever is lower. Total tax credits available to corporate contributions to scholarship organizations would be capped at $60 million in the first year and rise 5 percent annually.

The individual tax credit component of the proposal would allow a tax credit of up to $500 per family for educational expenses such as tuition, books, supplies, enrichment and tutoring. This credit could be applied to educational expenses regardless of whether the family chooses public, private or home schooling.

The Kentucky Education Tax Credit Program has additional key features:

- Both components would be open to students in all grades.
- Participating families would have to meet income-eligibility requirements; their total household income could not exceed 2.5 times the income threshold used to determine eligibility for the federal free or reduced-price school lunch program.
- The value of scholarship awards to a private school could not exceed the amount of per-pupil aid provided to the student's school district by the commonwealth's school-funding formula, called Support Education Excellence in Kentucky or SEEK.
- A private school would have to accept the scholarship for an eligible student as full payment for tuition and not require additional tuition payment from the eligible student's family.

This study examines the fiscal impact of the proposed Kentucky Education Tax Credit Program. The program's fiscal impact would first depend on the volume of contributions and the value of the tax credits claimed by corporations to fund scholarship organizations. Second, it would depend on the volume of individual taxpayer credits claimed for qualified educational expenditures.

The proposal calls for a maximum of $60 million in corporate tax credits available for businesses. Under this component, businesses could reduce their tax burden and direct funds to organizations that provide scholarships. The experience of other states suggests many businesses will contribute to the program.

The proposal does not cap the total amount of individual tax credits that can be claimed statewide, but it does establish income restrictions on claiming them. Under this component, Kentucky would increase investments in the education of its lower-income children. Rather than decide how the additional educational dollars will be allocated and to whom, the state would allow lower-income parents to decide how to allocate additional educational expenditures. The state's role would be to set broad expenditure guidelines; to set eligibility criteria so that credits were available only to taxpayers whose annual family income was below 2.5 times the income threshold to determine eligibility for federal free and reduced-price school lunches; and to provide the tax credit that would leave money in the hands of these lower-income parents to use for education.

Six states offer some type of tax credit or deduction to assist families who want to send their children to private schools. Minnesota, Iowa and Illinois offer a direct tax credit or deduction to parents sending their children to private schools. Arizona, Florida and Pennsylvania offer credits to individuals or corporations that contribute to organizations that provide scholarships to lower-income students. The experience of these states is directly relevant to the Kentucky proposal.

In Arizona, Florida and Pennsylvania, the opportunity to make contributions to scholarship programs in lieu of paying taxes has proven to be a powerful incentive for businesses to contribute. In each of the two states (Florida and Pennsylvania) where a cap was set on the total size of the program, the initial caps were reached in the first year. Both states subsequently increased the total allowable tax credits.

The Fiscal Impact of the Kentucky Education Tax Credit Program

Individual Tax Credits for Qualified Education Expenditures

The individual taxpayer portion of the proposed program would affect lower-income taxpayers who earn up to 2.5 times the annual income threshold for the free and reduced-priced lunch program. In 2006, a family of four with an income of $37,000 or lower would qualify for free or reduced-price school lunches. An income limit of 2.5 times that level would make both the scholarship portion and the individual taxpayer portion of the proposed tax credit program available to a family of four with an annual income of up to $92,500. Poverty thresholds and maximum family income to be eligible for the Kentucky tax credit program are presented in Table 1.

Table 1

2006 Poverty and Free or Reduced-Price Lunch Income Guidelines Applied to Kentucky Tax Credit Program Eligibility

People in Family or Household	Poverty Threshold 48 Contiguous States and D.C.	Free/Reduced Income Eligibility at 185% Poverty	Kentucky Scholarship & Tax Credit Income Eligibilty at 250% Free/Reduced Lunch Eligibility
2	$13,200	$24,420	$61,050
3	$16,600	$30,710	$76,775
4	$20,000	$37,000	$92,500
5	$23,400	$43,290	$108,225
6	$26,800	$49,580	$123,950

Source: Federal Register, Vol. 71, No. 15, & PolEcon Calculations

To estimate the volume of individual tax credits that would be claimed we examined the experience of other states that provide either tax credits or tax deductions for qualified K-12 educational expenditures. We then applied that information to income, demographic and tax data from Kentucky. Specifically we:

- Estimated the percentage of taxpayers who would claim a tax credit based on the percentage of taxpayers in Minnesota who claimed either a tax credit or tax deduction for educational expenditures. We adjusted the Minnesota experience to account for program differences, income guidelines and the characteristics of Kentucky families and children.

- Developed a model that uses the Internal Revenue Service's Statistics of Income, U.S. Bureau of the Census demographic data, and the experience of other state education tax credit programs to estimate the percentage of eligible children and families and the number and volume of credits that would be claimed.

We chose Minnesota because the tax credits offered in Iowa and Illinois are not means-tested, so participation levels will not be as similar to what we should expect from the proposed Kentucky policy, while the tax credit offered in Minnesota is means-tested (although Minnesota's tax deduction is not). Minnesota has 10 years' experience with tax credits for education and decades of experience with tax deductions. In 2004,

The Fiscal Impact of the Kentucky Education Tax Credit Program

- Fewer than 10 percent (220,000) of all taxpayers in Minnesota claimed a tax deduction for qualified educational expenditures, but we estimate that about 28 percent of taxpayers with children claimed deductions that reduced revenues in Minnesota by about $15 million. Because this deduction is available to taxpayers of all income levels in Minnesota, we anticipate a smaller percentage of taxpayers will claim the credit in Kentucky. We adjusted downward the percentage of likely taxpayers in Kentucky who will claim a credit to reflect the fact that lower-income taxpayers generally claim fewer deductions and for generally smaller amounts than higher-income taxpayers. In addition, data from the U.S. Bureau of Labor Statistics Consumer Expenditure Survey reveal that a smaller percentage of lower-income taxpayers report educational expenditures and at a lower level than do higher-income taxpayers.

- Only about 58,000 or 4 percent of income-eligible taxpayers and about 13 percent of eligible taxpayers with children claimed a tax credit for qualified educational expenditures. In 2004, approximately $15 million in tax credits were claimed in Minnesota, a state with about 30 percent more taxpayers than Kentucky, and with an education tax credit program that allows credits up to $1,000 for each eligible child in a family. The Kentucky proposal would cap the credit at $500 total for a family.

In Kentucky, families with children in public schools would be allowed to claim a credit for expenditures on educational enhancements such as tutors, other out-of-school enrichments, materials and books. Families with children in private schools could claim a tax credit for tuition payments up to $500 regardless of the number of children they have in private schools. Our basic process for estimating the volume of tax credits claimed by individuals is as follows:

- We used U.S. Census Bureau Micro data files to estimate the number of Kentucky school children in both private and public schools by household income, and by the percentage of the federal poverty threshold that their family income represents.

- Because most families of private-school children in Kentucky have significant educational expenditures, we assumed that 80 percent of all income-eligible students enrolled in private schools in Kentucky would claim a tax credit. This likely overstates the number who will claim the credit, especially among lower-income, private-school students.

- We assumed that 17 percent of families with public-school children will claim a tax credit.

- When combined, our estimates of 80 percent of private-school families and 17 percent of public-school families who will claim a tax credit produce an overall rate of claims of about 24 percent. This seems to be a reasonable estimate as it falls between our estimate of 28 percent of claimants for Minnesota's tax deduction (which is available to higher-income residents than the Kentucky proposal) and our estimate of 12 percent of claimants for Minnesota's education tax credit (which is open to families up to about 200 percent of the federal poverty threshold).

- We assume an average credit claim of $356, based on adjustments to the Minnesota tax credit experience. Families paying tuition likely will claim the maximum amount of $500, but a larger percentage of claims will come from families of public-school children, who, based on Consumer Expenditure Survey data, will not claim the entire value of the credit.

- Finally, because families would be able to claim a maximum of $500 in credits, and the majority of families with children have more than one child in school, we assume that, on average, each household with a child will have two children. The effect of this assumption is to halve the number of children eligible for the $500 tax credit, even though the number of eligible families does not change.

These procedures result in estimated tax credits that are presented in Table 2. The table shows that, if 24 percent of families claim the credit, as we estimated, total cost of credits would be approximately $23.2 million. The table also shows the number of eligible children at various poverty thresholds; an estimate of the percentage of families claiming credits at each level; and the total estimated cost of credits at each level. The table indicates that, as the poverty threshold for eligibility is increased, the number of families eligible obviously grows, but the percentage of eligible families claiming credits also rises. As income caps increase, more private-school students become eligible. We estimate that 80 percent of those families would claim a credit compared to the 17 percent of public-school families.

The shaded area in Table 2 highlights estimates under current provisions of the proposed tax credit. Although Table 2 presents our "best estimate" of credit use and costs, in reality there is a range of likely outcomes for the proposed credit with a cost that likely falls between $15 million and $30 million.

Table 2

Estimated Education Tax Credits by Individual Taxpayers

Average Children Per Family:	2
% Public-School Families Taking Credit:	17%
% Private-School Families Taking Creidts:	80%
Average Dollar Value of Credit:	$356

Annual Income % of Poverty	# Public School Children	Cumulative Public School Children	Cost of Public School Credits	# Private School Children	Cumulative Private School Children	Cost of Private School Credits	Total Cost of Credits	# of all Families Claiming Credits
< 50%	58,654	58,654	$1,774,856	2,337	2,337	$332,771	$2,107,628	20.2%
50-100%	81,443	140,096	$4,239,312	4,297	6,634	$944,674	$5,183,986	20.8%
100-150%	82,815	222,912	$6,745,309	4,426	11,060	$1,574,917	$8,320,226	20.9%
150-175%	36,999	259,911	$7,864,912	4,183	15,243	$2,170,614	$10,035,525	21.6%
175-200%	29,802	289,713	$8,766,730	2,353	17,596	$2,505,646	$11,272,376	21.8%
200-250%	64,545	354,259	$10,719,866	5,629	23,225	$3,307,237	$14,027,103	22.1%
250-300%	63,138	417,396	$12,630,409	6,667	29,892	$4,256,558	$16,886,967	22.5%
300-463%	132,256	549,652	$16,632,475	16,537	46,429	$6,611,459	$23,243,934	23.5%
500 + %	110,796	660,448	$19,985,156	26,390	72,819	$10,369,426	$30,354,582	25.2%

The estimate of $23.2 million in family education tax credits represents a reduction of less than 1 percent in Kentucky's total individual income tax collections of $2.79 billion in 2004.

In addition to being used to offset the cost of educational enrichments, services and materials, the proposed tax credit can be used to lower the price of private-school tuition by $500. This could be expected to induce a small number

of public-school students to migrate to private schools. Later in this report, we consider the impact that scholarships of various dollar values would have on the demand for private schools in Kentucky. The $500 tax credit, although not a scholarship, has the same net effect of lowering the price of private-school tuition for parents. A larger tax credit or a larger dollar-value scholarship that lowers the price of private-school tuition significantly could be expected to induce many families to migrate their children from the public to private schools.

Based on the demand model presented later in this study, we estimate that only about 3,053 of the 549,486 tax credit-eligible public-school students in Kentucky would migrate to a private school in response to the lower price of tuition resulting from a $500 tax credit. Although this is a small number of students, it represents a savings to Kentucky of $11.75 million in state education aid, based on a projected average per pupil SEEK payment of $3,849.

Considering the total impacts of the individual education expense tax credits, we estimate the net cost of the credit to be about $11.5 million:	
Credits Claimed	$23,243,934
(-) State Education Aid Savings	$11,750,772
= Net Cost of Credit	$11,493,162

Business Contributions to Scholarship Organizations

The experience of other states indicates that businesses can be expected to contribute up to the maximum amount allowed by the cap, $60 million in the first year, increasing by 5 percent annually thereafter. Florida and Pennsylvania businesses each made contributions that reached the total capped amount of tax credits in the first year of their programs and each has subsequently increased the caps. In Florida, just 19 corporations used the state's total allowable tax credits that first year; that strong demand prompted the state to raise the cap.

According to Internal Revenue Service data, 67,572 Kentucky companies filed corporate income tax returns in 2003. A similar number of business taxpayers are subject to the Kentucky corporate income tax, but their federal corporate tax filing originates in another state (that is, they have operations or a nexus in Kentucky that requires a Kentucky corporate income tax filing in addition to their federal tax return filed from another state). Also, 29,261 business partnership tax returns were filed in Kentucky in 2003.

- Businesses in Kentucky can be expected to behave similarly to businesses in other states for several reasons:
- In nationwide surveys, nearly half (48 percent) of all businesses indicated that education was their top priority for their philanthropic and civic activities. [2]
- In general, businesses are rewarded by owners, shareholders, equity analysts and financial institutions for minimizing the percentage of income going to taxes. A lower tax burden is associated with sound financial management.

Unlike tax payments, contributions to a program such as the Kentucky Education Tax Credit Program likely would generate civic and public relations benefits for the donor corporation.

Combined Demand for Kentucky Education Tax Credits

Figure 1

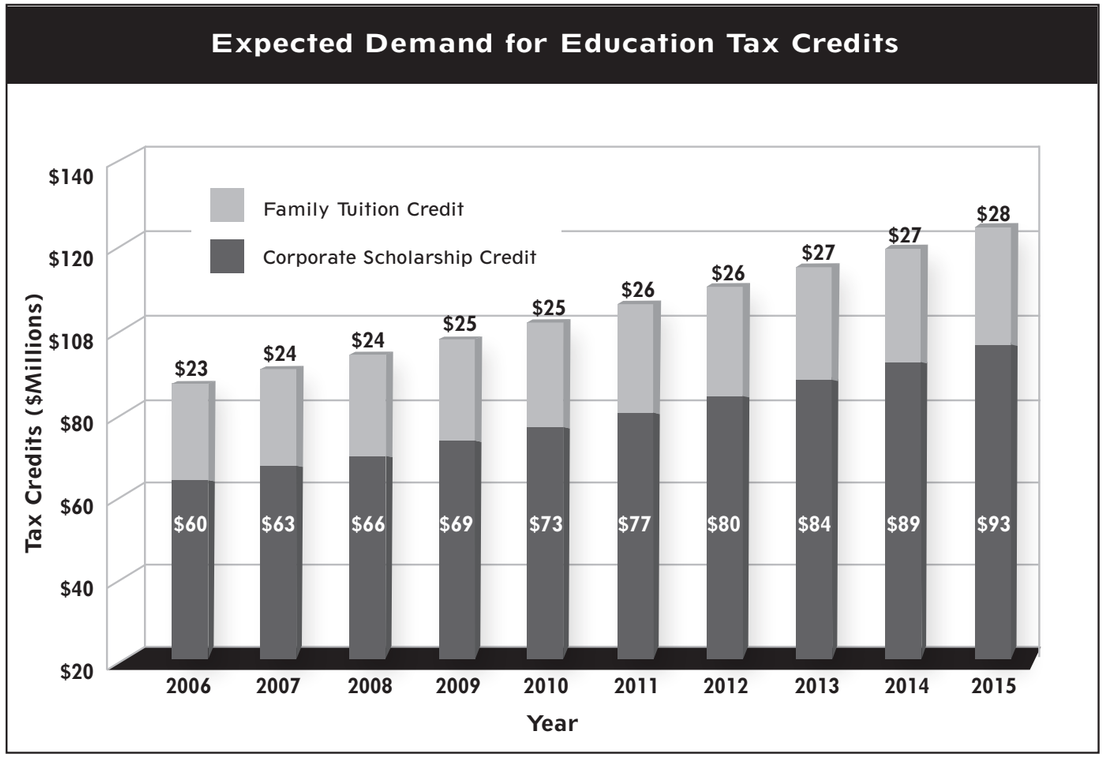


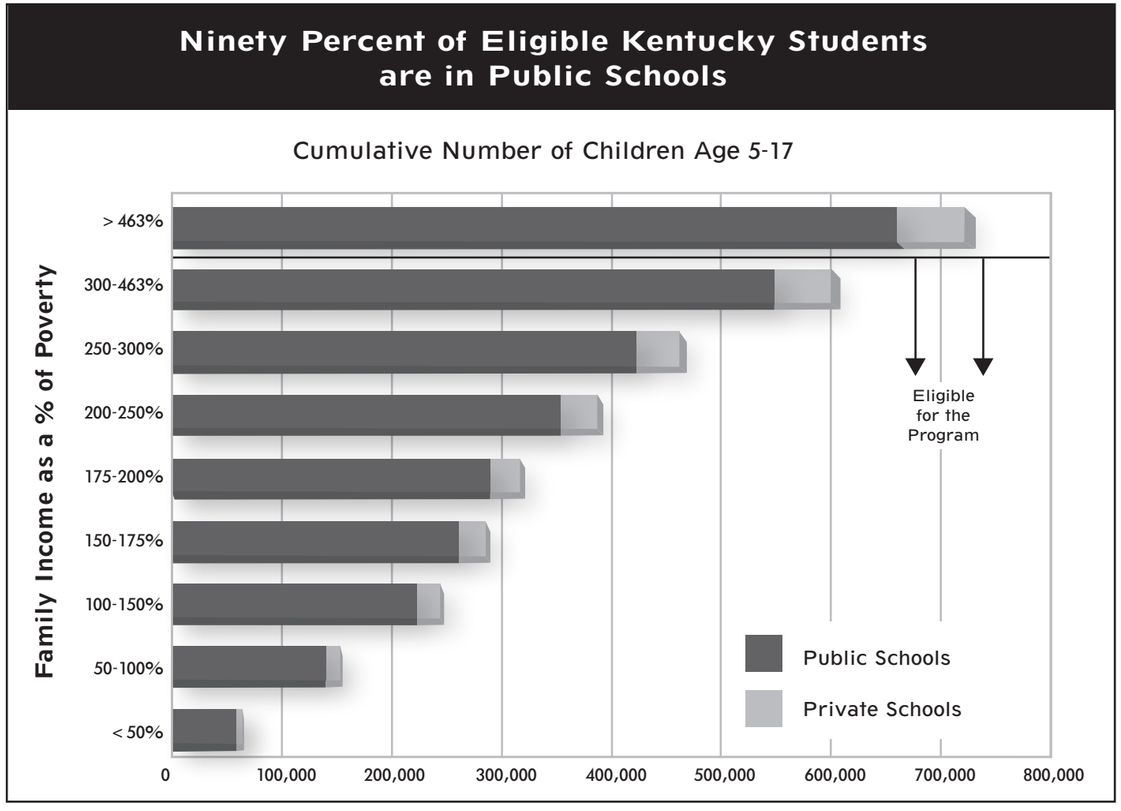
Figure 1 presents our estimates of the total amount (corporate and individual) of claims under the proposed Kentucky Education Tax Credit Program to the year 2015. We assume that corporations will claim the maximum available tax credits, as they did in Florida and Pennsylvania, and that allowable credits will increase by 5 percent a year. Tax credits to families are assumed to increase by 2 percent a year. These figures do not reflect the net fiscal impact of the program for the state treasury; they are simply the nominal dollar value of the tax credits claimed.

The Fiscal Impact of the Kentucky Education Tax Credit Program

Demographics of Kentucky's School Age Children

The Kentucky Education Tax Credit Program would apply to children from families with annual incomes at or below 2.5 times the income threshold for the federal free and reduced-price lunch program, or $92,500 for a family of four. Using this eligibility criterion, we examined the demographics of children eligible for the proposed program, as well as the overall population of school children in Kentucky. In addition, we examined key demographic distinctions between children in public and private schools.

Figure 2



Source: PolEcon Estimates Using Kentucky Dept. of Education and US Census Public Use Projections and Microdata Files

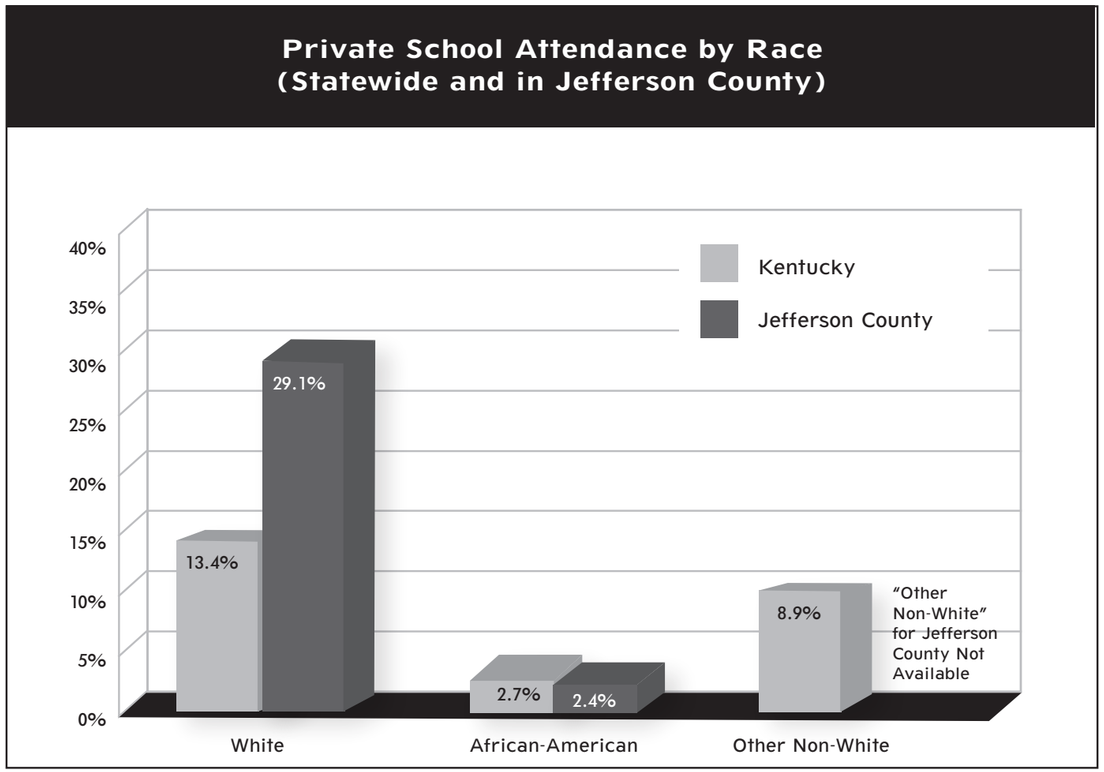
The 2004-2005 Superintendent's Annual Enrollment and Attendance Reports from the Kentucky Department of Education show that about 546,000 of Kentucky's 656,000 public-school children would have been eligible for scholarships or tax credits. Our estimate for the 2006-2007 school year is that about 549,652 public-school children and another 48,585 private-school children would be eligible (Figure 2).

Characteristics of Public and Private-School Children in Kentucky

According to U.S. Census Bureau data, slightly more than 12 percent of school children age 5-17 in Kentucky either attend a private school or are home-schooled. [3] The characteristics of public and private-school students vary in important ways, including:

- The percentage of children in private schools is highest among white children and lowest among African-American children. White children in urban Jefferson County are the most likely to attend a private school. African-American children in Jefferson County do not have a higher rate of private-school enrollment than do African-American children throughout Kentucky (Figure 3).

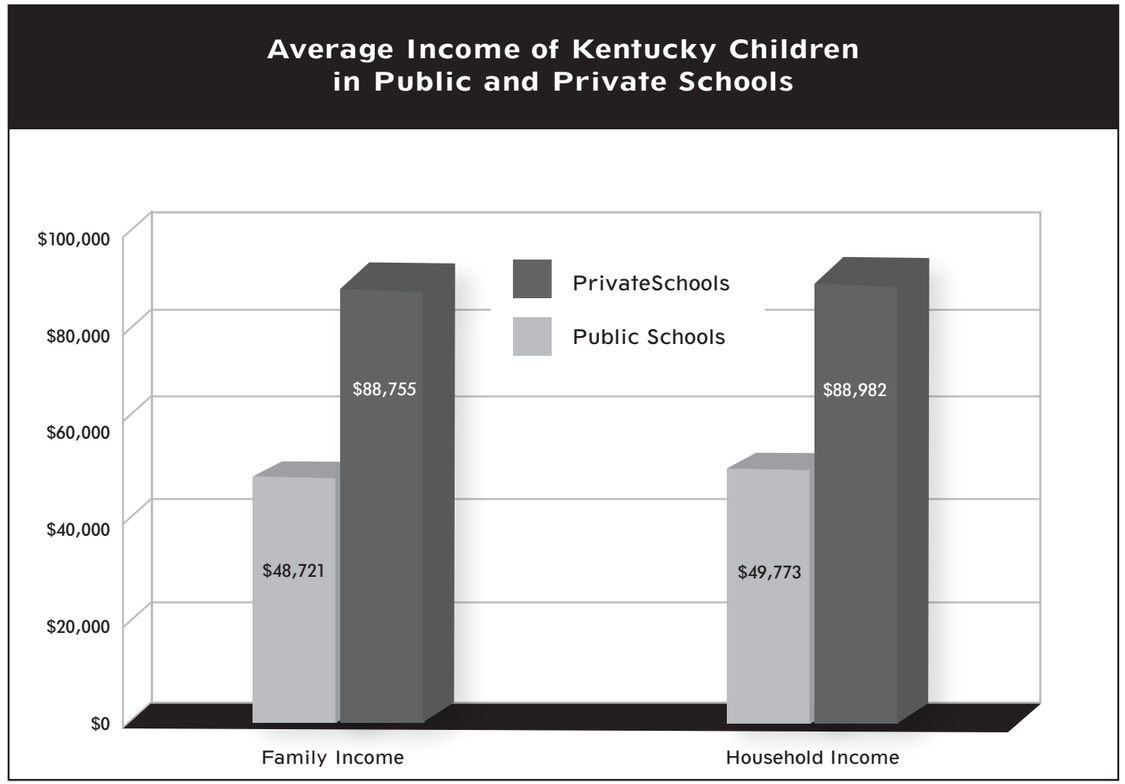
Figure 3



Source: PolEcon Analysis of US Census 2000, Public Use Microdata Files (PUMS 1% Sample)

- The average family income of children in private schools is significantly higher than the average for public schools (Figure 4), and a much higher percentage of lower income children attend public schools (Figure 5).

Figure 4

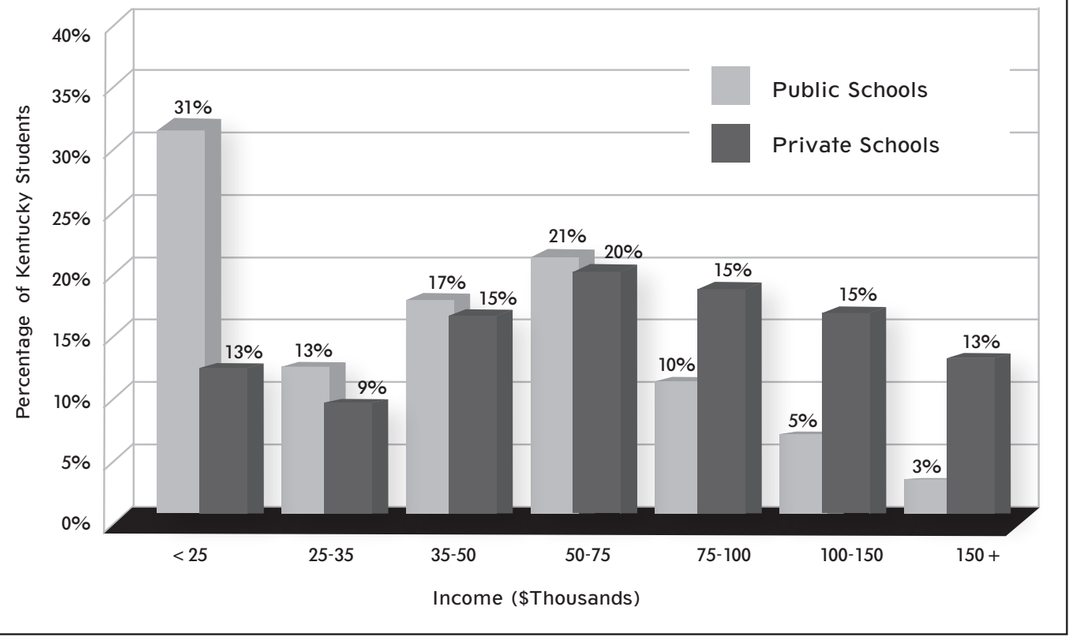


Source: PolEcon Analysis of US Census 2000, Public Use Microdata Files

Figure 4 shows that the average income of children attending public schools in Kentucky is about half that of the income of children attending private schools, and Figure 5 shows the dramatic differences in the income distribution of families with children in public versus private schools.

Figure 5

Income Distribution of Students in Kentucky Public and Private Schools



Source: PolEcon Analysis of US Census data

As Figure 5 shows, almost a third of children in Kentucky public schools come from families with annual income below $25,000, compared to 13 percent of students in private schools. It also shows that there are substantial opportunities for lower- and lower-middle-income families to attend private schools, as about a quarter of private-school students would qualify for the proposed program based on 2.5 times the income threshold eligibility for the federal free and reduced-price lunch program.

Together, these data suggest:

- There are substantial economic and racial differences in the composition of public versus private schools in Kentucky.
- There is especially strong demand for private schooling in Jefferson County. High rates of private-school enrollment in the district and a relatively high percentage of lower-income students in private schools suggest that even for families of limited means private schools appear to be a desirable option for educating children.
- The higher rates of private-school enrollment among children from upper-middle- and higher-income families, and among white children of all incomes, suggest that for white families and/or families with lower-middle to higher incomes, a large percentage view private schools as a more attractive option for educating their children.

Demand for Scholarships in Kentucky

During the 2005-2006 school year, Kentucky state government spending (as distinct from federal and local spending) was $3,755 per student on average. [4] Each student who leaves public school for private school thus generates an average savings to the state government of $3,755. Thus the net fiscal effect of the tax credit program depends on the number of students who migrate from public to private schools compared to the cost of the tax credits.

Forecasting the net fiscal impacts of Kentucky's proposed tax credit program, then, requires that we predict the actions of parents in response to the availability of scholarships. To estimate the number of students who will receive scholarships and attend private schools, we examined the size of the school-age population in public and private schools; the characteristics and differences of the population of school children in public and private schools; and the way those differences would affect demand for scholarships. We analyzed the interactive effects among the volume of scholarship funds available; the average dollar value of individual scholarship awards; and the impact that the migration of public-school students to private schools will have on public-school enrollments in Kentucky.

Tuition Prices Strongly Influence the Demand for Private Schools

To determine the fiscal impact of corporate contributions to scholarships, we consider several factors: How will families of children in public schools respond to the increased availability of scholarships? What percentage of scholarships will go to children migrating from public to private schools, and what percentage would go to students already enrolled in private schools?

We developed a model to forecast demand for private schooling based on a review of relevant literature; the experiences of other states with scholarship tax credit programs; and our own experience modeling private-school demand in other states. [5] We employed the following assumptions:

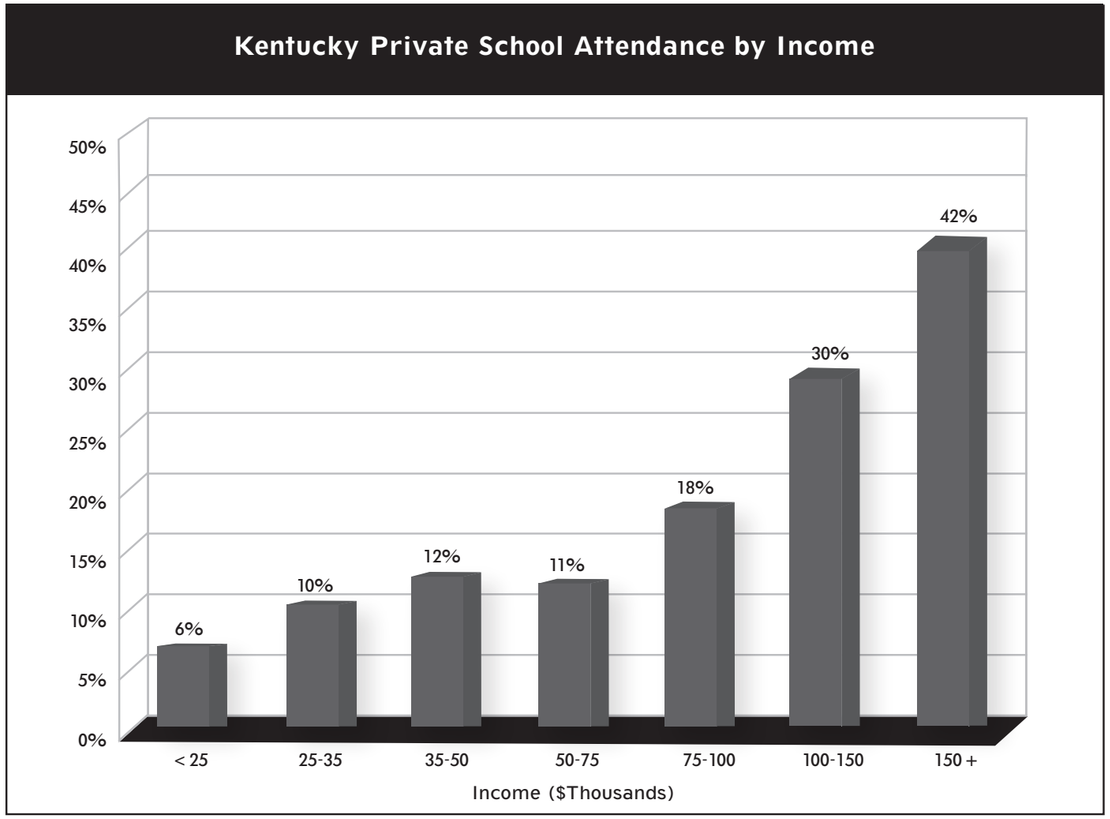
- Only 85 percent of corporate contributions will be used to grant scholarships to private schools. The remaining 15 percent will be used, as permitted under the proposed program, to provide students with stipends for educational activities related to art, music, dance and drama, and also for administrative costs of scholarship organizations. This percentage is important for calculating net fiscal impact because contributions that do not fund scholarships also do not reduce state education spending by inducing public-school students to attend private schools.
- We assume that scholarships will be divided between children in public and private schools according to the percentage of demand from each group. Current private-school students who qualify for a scholarship based on income standards number about 46,429. We assume that nearly all of these students, because they are lower-income private-school students, will apply for scholarships. We assume that 20 percent already receive some type of scholarship and would not apply.
- Because private schools would have to accept a tax-credit-funded scholarship as payment in full for tuition, we assume that low-value scholarships (below $2,000) will not be granted.
- Our models show that, as the value of scholarships increase, the demand for scholarships among public-school children increases (while demand from current private-school students is constant and inelastic). This means that, as the average value of scholarship awards increases, the percentage of the overall demand for scholarships by public-school families increases. At the same time, however, the total number of scholarships available declines.

A number of studies have estimated the increase in demand for private schooling as a result of changes in the price of the schools, or the "price elasticity" of demand. The most widely cited studies indicate that the demand for private schools increases as the price declines, a so-called "negative price elasticity." However, these studies project a wide range of estimates of the price elasticity of demand for private schooling. Chiswick and Koutroumanes estimate a price elasticity of about -0.50, suggesting that a 10 percent decline in the price of private schools would lead to a 5 percent increase in demand, while Gwarntey and Stroup estimate price elasticity of -1.1, suggesting that a 10 percent decline in the price of private schools would lead to an increase in demand of 11 percent.[6] Studies less often cited and less well-documented have found price elasticities as high as -2.88.

Family Income is a Key Determinant of Demand

Although many studies have produced estimates of the price elasticity of demand for private schooling, there is no direct evidence of how changes in price will affect the decisions of parents in Kentucky. An alternative to indirect estimates of the impact of price on demand is to consider tax credit scholarships as having an "income effect" on the demand for private schooling. Scholarships are treated as an increase in the income of the recipient families, spendable only on a private-school education. Evidence of the income effect on demand for private schooling is available using detailed data from the 2000 Census.

Figure 6



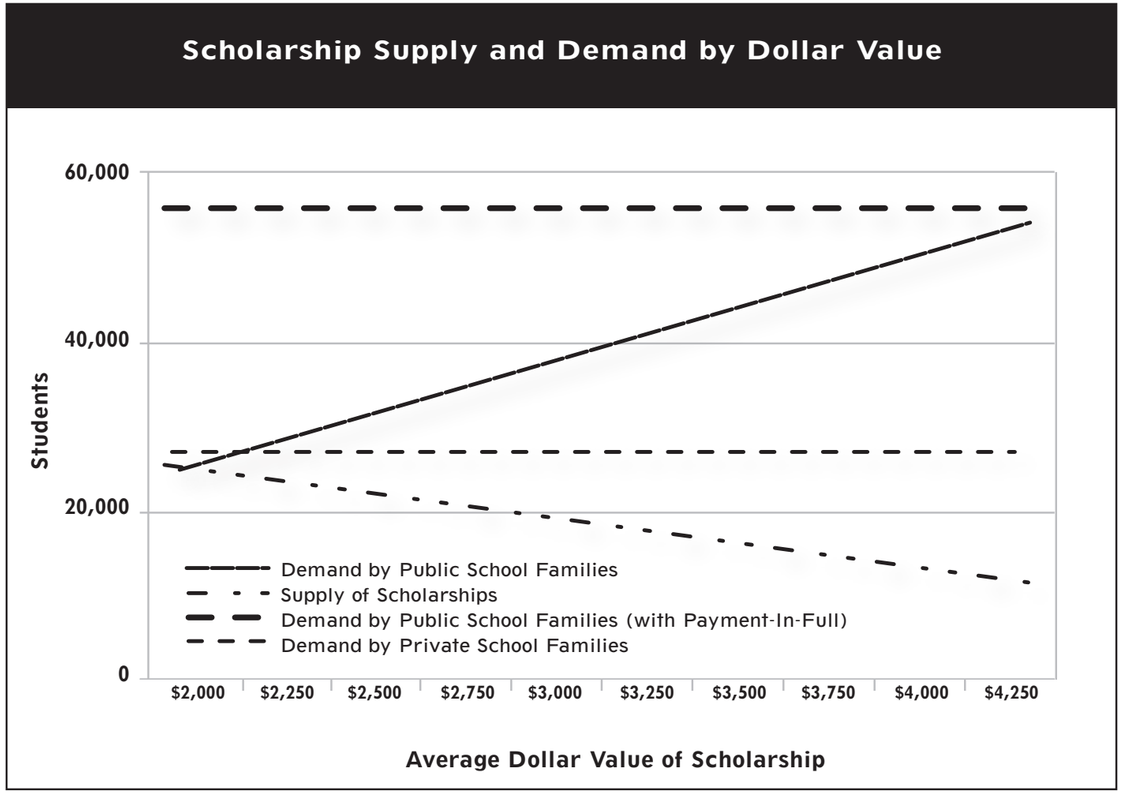
Source: PolEcon Analysis of US Census data Files (PUMS 1% Sample)

The Fiscal Impact of the Kentucky Education Tax Credit Program

As Figure 6 demonstrates, the demand for private schooling in Kentucky increases significantly with increases in family income. "Income elasticity" refers to the change in demand for private school that occurs for each percentage-point change in family income. For example, an elasticity of 0.5 would indicate that if the income of families in Kentucky doubled (a 100 percent increase) there would be a corresponding increase in private school attendance of 50 percent. Figure 6 suggests an income elasticity of about 1.0 as income moves from poverty status to lower-middle income ($35,000-$50,000) and a very high elasticity (much greater than 1.0) as income moves from middle to upper-middle and high income. While only 5.5 percent of Kentucky's school-age (5-17) children in families with less than $25,000 in annual income are in private schools, the percentage grows to 11 percent for children in families with annual incomes between $50,000 and $75,000. At an income level between $100,000 and $150,000, the percentage of school-age children in private schools increases to 30 percent, and 42 percent of school-age children in families with incomes above $150,000 are in private schools. These data suggest that the demand for private schools is quite elastic in Kentucky and that even among lower-income families, scholarships are likely to result in an increase in the demand for private schooling.

The impact scholarships have on the demand for private schools will depend on the dollar value of scholarships, so our model uses average scholarship values ranging from $2,000 to $4,250 (for comparison, the average private-school tuition in 2006 is about $4,500). We calculated the reduction in price that scholarships of each dollar value would have on our forecast of the average price of tuition to 2015 and applied three separate estimates of elasticity: -0.50 (low), -1.0 (medium) and -1.25 (high) to projections of the number of public-school students in 2015 to estimate the increase in demand for private schools that would occur among eligible public-school students. Because the proposed program would require that scholarships be payment in full for tuition, the scholarship would function like a 100 percent reduction in the price of tuition and, as a result, we used an estimated price elasticity of demand of -1.0.

Figure 7



Combining Scholarship Supply and Demand Models to Estimate the Number of Scholarships

The experience of other states suggests that the number of applicants for tax-credit scholarships (or demand) will be greater than the available number of scholarships. In Kentucky, the supply of scholarship money would be limited and fixed in any one year, and it may not be sufficient to award scholarships to all applicants. In addition, because income-qualified students already enrolled in private schools would be eligible, the amount of scholarship money available to meet the demand from public-school students wanting to migrate to private schools would be more limited. For example, assuming a moderate elasticity of -1.0 and an average scholarship value of $4,000, we calculated that in 2008 the scholarships should increase the demand for private schools among eligible families by about 46,081 children in Kentucky. At the same time, we projected that scholarship funds of about $56.2 million would be available; meaning that only 14,057 scholarships – or 30.5 percent of the demand – would be available. [7] In addition, we assumed that, at scholarship values of $4,000, about 37 percent of scholarships would go to students already enrolled in private schools, leaving only 8,842 scholarships for public-school students. Thus only about 20 percent of demand among public-school students for scholarships of $4,000 is likely to be met.

Figure 7 highlights the relationship between the demand for scholarships and their supply at an average value of scholarships between $2,000 and $4,250. The chart presents two estimates of demand. The solid line reflects only the effect of traditional price elasticity – demand increases as the value of scholarships rises makes private schools more affordable. The dashed line also takes account of the program requirement that private schools must accept scholarships as payment in full. This means that a scholarship of any value will be a 100 percent reduction in the price of tuition, so that the demand at any scholarship value should be the same. The broader impact this provision may have is not clear. It could reduce the number of participating private schools, which would reduce the supply of private schooling available to scholarship students. Alternately, it could result in a higher-value scholarship, high enough to prompt private schools to increase their space to accommodate the number of scholarship students. In this scenario, the actual number of scholarships awarded likely would be quite similar to the number of scholarships that would have been awarded if the payment-in-full provision were not included in the proposal. Figure 7 also presents our estimate of demand among eligible private-school students. The most important information to be gleaned from Figure 7 includes:

- An average scholarship value of about $2,000 would maximize the number of public-school migrants. Making middle-income families eligible for scholarships would result in greater migration to private schools at a lower average scholarship value. It is not clear how the payment-in-full provision of the proposal would affect these phenomena.

- Scholarship demand from current private-school students would not change according to the average dollar value of scholarships because eligible families have already made the decision to attend a private school. Scholarships will eliminate the price low-income families pay but not influence their decision to attend private schools.

Fiscal Considerations of the Payment-in-Full Provision

The program's payment-in-full provision, described above, will have an impact on its expected fiscal effect. There are several important considerations in designing a school-choice policy and the following analysis does not examine all factors that might support or oppose the payment-in-full provision; it looks only at the provision's fiscal impact.

Depending on the dollar amount of the scholarships, the payment-in-full provision might result in fewer private schools accepting tax credit-funded scholarships and thus fewer slots for students; the level simply may be too low for the schools to justify accepting scholarship students. If, on the other hand, the average value of scholarships is

at or near the average cost of tuition at private schools, fewer scholarships can be provided, also reducing the number of students who can migrate from public to private schools.

With fewer students removed from public schools, the overall cost of the program for Kentucky would increase. The state would realize the largest fiscal benefit if the average scholarship value is as low as possible, but still high enough to induce sufficient migration from public to private schools to offset the cost of the tax credits. Without the payment-in-full provision, a significant number of families would move their children from public to private schools at scholarship values of, say, $1,500 to $2,500, even if they have to pay a certain amount of tuition out of their own pockets. With the payment-in-full provision, however, private schools likely would require a higher-value scholarship to participate in the program. The result likely would be a higher average dollar value for scholarships, approaching the maximum allowable value of approximately $3,750. Under that scenario, most of the public-school migration that would occur at relatively low scholarship values would be eliminated because fewer scholarships of higher value would be available. Another way of looking at the provision is that it will increase the cost of each migrating public-school student, reducing the potential for savings.

Table 3

Components of Scholarship Demand in 2006 by Average Value of Scholarship

Average Scholarship Value	Demand From Private School Families	Demand From Public School Families	Total Demand	Public School % of Demand	# Available Scholarships	# to Public School Migrants	# to Private School Families	% of Total Demand Met	Net Fiscal Impact
$2,000	27,857	24,429	52,286	46.7%	25,500	11,914	13,586	48.8%	($2,143,843)
$2,250	27,857	27,483	55,340	49.7%	22,667	11,257	11,410	41.0%	($4,674,160)
$2,500	27,857	30,536	58,394	52.3%	20,400	10,668	9,732	34.9%	($6,939,836)
$2,750	27,857	33,590	61,447	54.7%	18,545	10,138	8,408	30.2%	($8,980,327)
$3,000	27,857	36,643	64,501	56.8%	17,000	9,658	7,342	26.4%	($10,827,613)
$3,250	27,857	39,697	67,554	58.8%	15,692	9,221	6,471	23.2%	($12,507,896)
$3,500	27,857	42,751	70,608	60.5%	14,571	8,823	5,749	20.6%	($14,042,843)
$3,750	27,857	45,804	73,662	62.5%	13,600	8,457	5,143	18.5%	($15,450,528)
$4,000	27,857	48,858	76,715	63.7%	12,750	8,120	4,630	16.6%	($16,746,148)

Estimated Demand

Table 3 presents our estimate of the demand for scholarships among public and private-school families in the first full year that the program generates $60 million in tax credits. We estimated that $51 million would be available for scholarships. We also estimated the available supply of scholarships, according to their average value. We did not consider average scholarship values below $2,000 because it is unlikely that such values would be accepted as payment in full by most private schools. The table shows that, as the dollar value of scholarships increases, demand for scholarships by public-school families increases (even while the demand by eligible private-school families remains

constant). This means that, at higher scholarship values, public-school students will demand a higher percentage of available scholarships. We assumed that scholarships would be split between existing private-school students and public-school students looking to migrate to private schools in roughly the percentage of total demand represented by each group.

Fiscal Impact of the Scholarship Program

The cost of the scholarship tax credit component is determined by a range of variables that are difficult to pinpoint. However, a range of costs can be predicted based on the minimum and maximum values of the variables. The net impact of scholarship tax credits on state budgets is determined by:

- The corporate tax revenue foregone as a result of tax credits for contributions to scholarship organizations.
- The percentage of tax credit contributions allocated for scholarships.
- The number of scholarships awarded to public-school students who migrate to private schools.
- The reduction in per-pupil state education aid as a result of the migration of students from public to private schools.

Table 4

The net fiscal impact of the program depends on the number of students who migrate from public schools to private schools; for every student who migrates, the state saves that much in state aid to local school districts. For the 2004-2005 school year (the most recent year for which data are available), Kentucky paid about $3,755 per pupil in state education aid for every public-school student. We projected that this spending level would be $3,811 for 2006-2007.

Projected Public-School Migration by Average Size of Scholarship

Based on $60 Million in Tax Credits with 85% Going to Scholarships and 60% of Scholarships Going to Public-School Families

Avg. Scholarship	2006	2007	2008	2009	2010	2011	2012	2013
$2,00	11,914	12,510	13,135	13,792	14,482	15,206	15,966	16,764
$2,250	11,257	11,819	12,410	13,031	13,682	14,367	15,085	15,839
$2,500	10,668	11,201	11,761	12,349	12,967	13,615	14,296	15,011
$2,750	10,138	10,645	11,177	11,736	12,323	12,939	13,586	14,265
$3,00	9,658	10,141	10,648	11,180	11,739	12,326	12,942	13,590
$3,250	9,221	9,682	10,166	10,675	11,209	11,769	12,357	12,975
$3,500	8,823	9,264	9,727	10,213	10,724	11,260	11,823	12,414
$3,750	8,457	8,880	9,324	9,790	10,279	10,793	11,333	11,900
$4,000	8,120	8,526	8,952	9,400	9,870	10,364	10,882	11,426

Table 4 presents our estimate of the number of public-school students who will migrate as a result of the scholarship tax credit program. The table reflects the program design elements as outlined in Kentucky House Bill 231. In addition, the table incorporates the following assumptions:

- 85 percent of tax credit contributions will go to scholarships for students to attend private schools.
- The percentage of scholarships awarded to public-school families ranges from 46 percent at an average scholarship value of $2,000 to 63 percent at an average scholarship value of $4,000. Note that the proposal would allow for a maximum scholarship value equal to the amount of state per-student aid in the student's school district. In 2006-2007 that amount is expected to average approximately $3,800.

Table 5

Table 5 shows the net annual fiscal impacts of a $60 million scholarship tax credit program (increasing annually by 5 percent) from 2006 through 2015. The table shows that as structured, the program would most likely cost the state from $2 million to $17 million in the first year, or less than one third of the nominal $60 million size of the program. Losses are reduced each year and change to net fiscal gains as the average value of scholarships is reduced, if scholarship values remain high enough to induce significant public school migration but low enough to allow more scholarships to be granted.

Net Fiscal Impact of $60 Million Scholarship Program
(Assumes 80% Tax Credit and 46% to 60% Go to Public-School Families)

Average Scholarship Value	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
$2,000	($2.1)	($1.0)	**$0.2**	**$1.6**	**$3.2**	**$5.0**	**$6.9**	**$9.2**	**$11.6**	**$14.4**
$2,250	($4.7)	($3.8)	($2.7)	($1.6)	($0.2)	**$1.3**	**$3.0**	**$4.9**	**$7.1**	**$9.5**
$2,500	($6.9)	($6.2)	($5.4)	($4.4)	($3.3)	($2.0)	($0.5)	**$1.1**	**$3.0**	**$5.1**
$2,750	($9.0)	($8.4)	($7.7)	($6.9)	($6.0)	($4.9)	($3.7)	($2.3)	($0.7)	**$1.1**
$3,000	($10.8)	($10.4)	($9.9)	($9.2)	($8.5)	($7.6)	($6.6)	($5.4)	($4.0)	($2.4)
$3,250	($12.5)	($12.2)	($11.8)	($11.3)	($10.7)	($10.0)	($9.2)	($8.2)	($7.0)	($5.7)
$3,500	($14.0)	($13.9)	($13.6)	($13.2)	($12.8)	($12.2)	($11.6)	($10.7)	($9.8)	($8.7)
$3,750	($15.5)	($15.4)	($15.2)	($15.0)	($14.7)	($14.3)	($13.7)	($13.1)	($12.3)	($11.4)
$4,000	($16.7)	($16.8)	($16.7)	($16.6)	($16.4)	($16.1)	($15.8)	($15.3)	($14.7)	($13.9)

Conclusions

Our analysis anticipates that there will be a great deal of participation and interest in both the individual tax credit program available to families for educational expenditures and the business scholarship tax credit program.

We estimated that about $23.5 million in individual tax credits will be claimed by families for qualified educational expenditures, but that a small number (about 3,000) of students will migrate from public to private schools as a result of this tax credit, saving the state about $3,811 each in public school spending. The net impact of the individual tax credit component will be a cost to the commonwealth of Kentucky of only about $11.4 million, or less than half the nominal size of the program.

Based on the experience of other states, we expect that corporations in Kentucky will make full use of all available tax credits for contributions to scholarship organizations. We concluded that, as proposed, the program will cost the commonwealth of Kentucky only between $2 million and $17 million in its first full year, or less than one third of the nominal size of the program. Costs will be further reduced each year thereafter.

The Fiscal Impact of the Kentucky Education Tax Credit Program

Endnotes

[1] A national poll conducted by Harris Interactive in August 2005 found that 60 percent of Americans favor "allowing students and parents to choose any school, public or private, to attend using public funds." See: http://www.friedmanfoundation.org/news/2005-08-23.html. Other national poll results confirming this finding are reviewed in the Friedman Foundation's publication *ABCs of School Choice*.

[2] "The State of Corporate Citizenship: A View From Inside," The Center for Corporate Citizenship at Boston College, 2004.

[3] The Census Bureau does not survey for home-schooling. According to the Kentucky Department of Education, an estimated 12,000 children are home-schooled children in Kentucky.

[4] Kentucky Department of Education; see: http://www.education.ky.gov/NR/rdonlyres/ernssrj4qovh63teoyeigs2o4yuydu2wmogdbdy62rst4zq4en4acis2hqv4z3tx55ew7m5ddtbhejfanmtcduk3oef/200506SEEKFinalSummaryPerPupil.xls.

[5] Specifically, PolEcon has modeled the price and income elasticity of demand for private schooling in New Mexico, Missouri and New Hampshire.

[6] B. R. Chiswick and S. Koutroumanes, "An Econometric Estimate of the Demand for Private Schooling," Research in Labor Economics 15:209-237, 1996; and J. D. Gwartney and R. L. Stroup, Economics: Private and Public Choice (8th edition), South-Western College Press, 1997.

[7] The amount of potential scholarship money is $66.15 million in 2008. Administrative costs and money awarded for uses other than scholarship purposes will be 15 percent of contributions or about $10.4 million, leaving $56.2 million for scholarships.

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The Fiscal Impact of the Kentucky Education Tax Credit Program

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